

NON-PUBLIC?: N  
ACCESSION #: 9310220179  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Fermi 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000341

TITLE: Manual Reactor Scram due to Maintenance Breach of Reactor  
Feedwater System  
EVENT DATE: 09/17/93 LER #: 93-013-00 REPORT DATE: 10/18/93

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 17

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Elizabeth A. Hare, Senior COMPLIANCE ENGINEER  
TELEPHONE: (313) 586-1427

COMPONENT FAILURE DESCRIPTION:  
CAUSE: X SYSTEM: FW COMPONENT: FCV MANUFACTURER: F130  
REPORTABLE NPRDS: YES

SUPPLEMENTAL REPORT EXPECTED: NO

#### ABSTRACT:

On September 17, 1993 an inadvertent breach of the Reactor Feedwater System occurred during a planned reactor shutdown with the reactor at 17% power. Maintenance personnel had begun work on the No. 5 North Feedwater Heater Level Control valve, N22-F415A, located on the discharge side of the heater drain pump prior to the establishment of the proper plant conditions. As a result, control room operators manually scrambled the reactor in order to shut down the feedwater system and isolate the system leak. All plant systems performed as expected and all leakage was contained within the plant.

The cause of the event was personnel error in failing to follow established work control practices. Poor communications, weaknesses in the implementation of the Work Control Process, and modification to the planned schedule of work contributed to this event. Corrective actions will

include discipline administered in accordance with plant policy, counseling of those involved and training of appropriate plant personnel.

END OF ABSTRACT

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Initial Conditions:

Operational Condition: 1 (Power Operation)  
Reactor Power: 17 percent  
Reactor Pressure: 945 psig  
Reactor Temperature: 499 degrees Fahrenheit

Description of Event:

On September 17, 1993 a reactor manual scram occurred during a planned plant shutdown to repair the No. 5 North Feedwater Heater Level Control valve N22-F415A (LCV) located on the discharge side of the heater drain pump (SM). N22-F415A was suspected of having a separation between the valve plug and stem. In order to repair this valve, the Reactor Feedwater System (FW)(SJ)! had to be isolated, which required a reactor shutdown. At 1803 hours, a maintenance crew (Utility, non-licensed) began removing the valve actuator for N22-F415A. However, the Feedwater System shutdown was not complete and system pressure at the valve was approximately 780 psig.

The valve stem was ejected from the valve, breaching the system during actuator removal. Water and steam sprayed from the valve at about 100 gpm. Three Nuclear Maintenance Journeymen (NMJs)(Utility, non-licensed)! at the valve received various 1st and 2nd degree burns to their hands, arms, and torso. The injured personnel were taken to a local hospital where they received treatment. They were subsequently released to return to work.

When informed of the Feedwater System breach, the control room operating crew established an alternative flow path to the Reactor Pressure Vessel (RPV) using the Standby Feedwater System (SBFW)(BA)!. The reactor was then manually scrammed so that the in-service Reactor Feed Pump (RFP) could be shutdown, and the necessary valves shut to isolate the leak. The leak was stopped at 2210 hours when system drain was finished. The leakage was confined to the turbine building basement area. All plant systems functioned as designed. A low RPV level 3 signal was received due to RPV water level shrink following the scram causing isolation of primary containment valve groups 4, 13, and 15.

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#### Cause of the Event:

The cause of the event was personnel error in failing to follow established work control practices. Contributing to the event was poor written and verbal communications, weaknesses in the implementation of the Work Control Process and modification to the planned schedule of work.

Operations personnel (Utility, licensed) released the work package for performance of non intrusive work with the intent of providing as much time as possible for the actual repairs to the valve. The restrictions (limitations) on how far the work was to progress were handled verbally. However, due to misunderstanding and subsequent miscommunications, the maintenance crews at the valve believed that appropriate plant conditions had been established to perform work up to removal of the valve actuator.

The work package impact statement was not clearly understood by involved personnel to apply to the entire job. Opportunities to prevent this event were missed during the day and afternoon shifts as personnel became more focused on their individual responsibilities and lost sight of the reason for the work, the separation of the valve stem and plug.

#### Analysis of Event:

The Reactor Feedwater System provides the normal makeup water to the RPV to replace steam flow from the RPV during normal power operation. The breach in the Feedwater System did not threaten the continued feedwater flow. The Feedwater System was manually shutdown after an alternative makeup flow was established and the reactor shutdown. All Feedwater System leakage was confined to the turbine building basement and did not pose a threat to equipment needed to safely shutdown the plant. Therefore, during this event, the health and safety of the public, as well as plant safety were not affected. The three maintenance workers who received minor injuries were placed at risk for more serious injury due to their proximity to the high energy Feedwater System breach.

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#### Corrective Actions:

A Human Performance Enhancement System (HPES) review was immediately performed.

A Lesson Learned meeting was held with the individuals involved with the event and Senior Management on October 6, 1993. The meeting included a discussion of the event and the corrective actions necessary to prevent

recurrence.

Discipline will be administered in accordance with plant policies.

Corrective actions will be coordinated with the HPES report with respect to work package preparation and the Work Control Program. These actions will be completed in accordance with the Corrective Action Program.

Previous similar events:

None

Failed Component Data:

N22-F415A- Fisher Controls, Globe Flow Control Valve

ATTACHMENT 1 TO 9310220179 PAGE 1 OF 1

Detroit Edison

Fermi 2  
6400 North Dixie Highway  
Newport, Michigan 48156 Nuclear  
(313) 586 4000 10CFR50.73 Operations

October 18, 1993  
NRC-93-0118

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Reference: Fermi 2  
NRC Docket No. 50-341  
NRC License No. NPF-43

Subject: Licensee Event Report (LER) No. 93-013

Please find enclosed LER No. 93-013, dated October 18, 1993, for a reportable event that occurred on September 17, 1993. A copy of this LER is also being sent to the Regional Administrator, USNRC Region III.

If you have any questions, please contact Elizabeth Hare, Compliance Engineer, at (313) 586-1427.

Sincerely,

Enclosure: NRC Forms 366, 366A

cc: T. G. Colburn

W. J. Kropp

J. B. Martin

M. P. Phillips

P. L. Torpey

Wayne County Emergency  
Management Division

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